

1.1 Forward

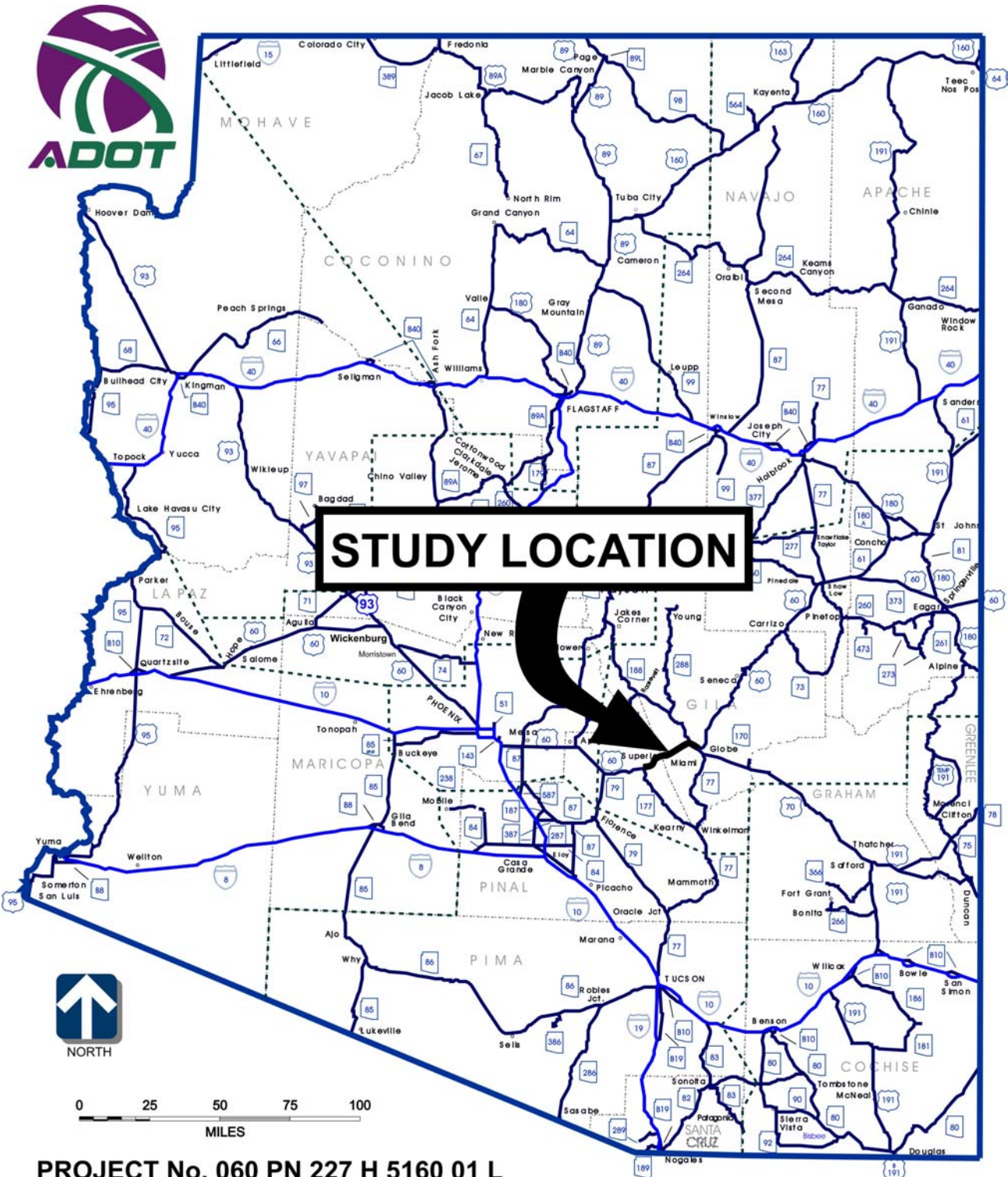
This Feasibility Study is submitted in accordance with Contract 99-22 between the Arizona Department of Transportation (ADOT) and Jacobs Civil, Inc. The report presents the results of an investigation of alternative corridors and alternatives for improving US 60 between the Town of Superior and the intersection of US 60/US 70 located in the City of Globe (see **Figure 1-1**).

The purpose of the Feasibility Study is to develop and evaluate alternatives for realignment and/or improvement of US 60 between Superior and Globe in order to enhance safety and traffic operations, and to meet future traffic demands. This Feasibility Study presents various alternatives for meeting these objectives, compares the differences between the proposed improvements of each alternative, and recommends those to be retained for further detailed study.

The project limits for the study area begins at US 60 milepost (MP) 223.8, near the western limits of the Boyce Thompson Arboretum, and extends eastward approximately 35 miles to US 60 MP 258.0, northeast of the intersection of US 70 and US 60 in Globe (see **Figure 1-2**). The study route is located within Pinal and Gila Counties and lies within the ADOT Globe District.

The project limits had initially started at the eastern end of the Town of Superior, near MP 226.8. However when the alternatives were developed, it became necessary to extend the limits of the study westerly to begin west of the Arboretum, within the limits of the Florence Junction-Superior study limits. ADOT completed a Design Concept Report (DCR) for US 60; Florence Junction to Superior that defines needed improvements for that section of highway. While this feasibility study overlaps the easterly end of the Florence Junction to Superior DCR, the improvements proposed within the DCR for Superior will likely be needed and constructed long before the ultimate improvements for this study are constructed.

Several governmental agencies have been involved in the study including the Federal Highway Administration (FHWA), Pinal County, Gila County, Tonto National Forest (TNF), the Town of Superior, the Town of Miami, the City of Globe, Arizona Department of Public Safety (DPS), several departments within ADOT, Arizona State Lands, Arizona Game and Fish, U. S. Fish and Wildlife Service, U. S. Bureau of Reclamation, U. S. Bureau of Indian Affairs, U. S. Natural Resources Conservation Service, Central Arizona Association of Governments (CAAG), and U. S. Bureau of Land Management (BLM). Private organizations include the Greater Globe-Miami Chamber of Commerce, BHP Copper, Arizona Eastern Railroad, Cyprus Miami Mining Corp. and various utilities.



PROJECT No. 060 PN 227 H 5160 01 L
U.S. 60; SUPERIOR - GLOBE

Figure 1-1
LOCATION MAP

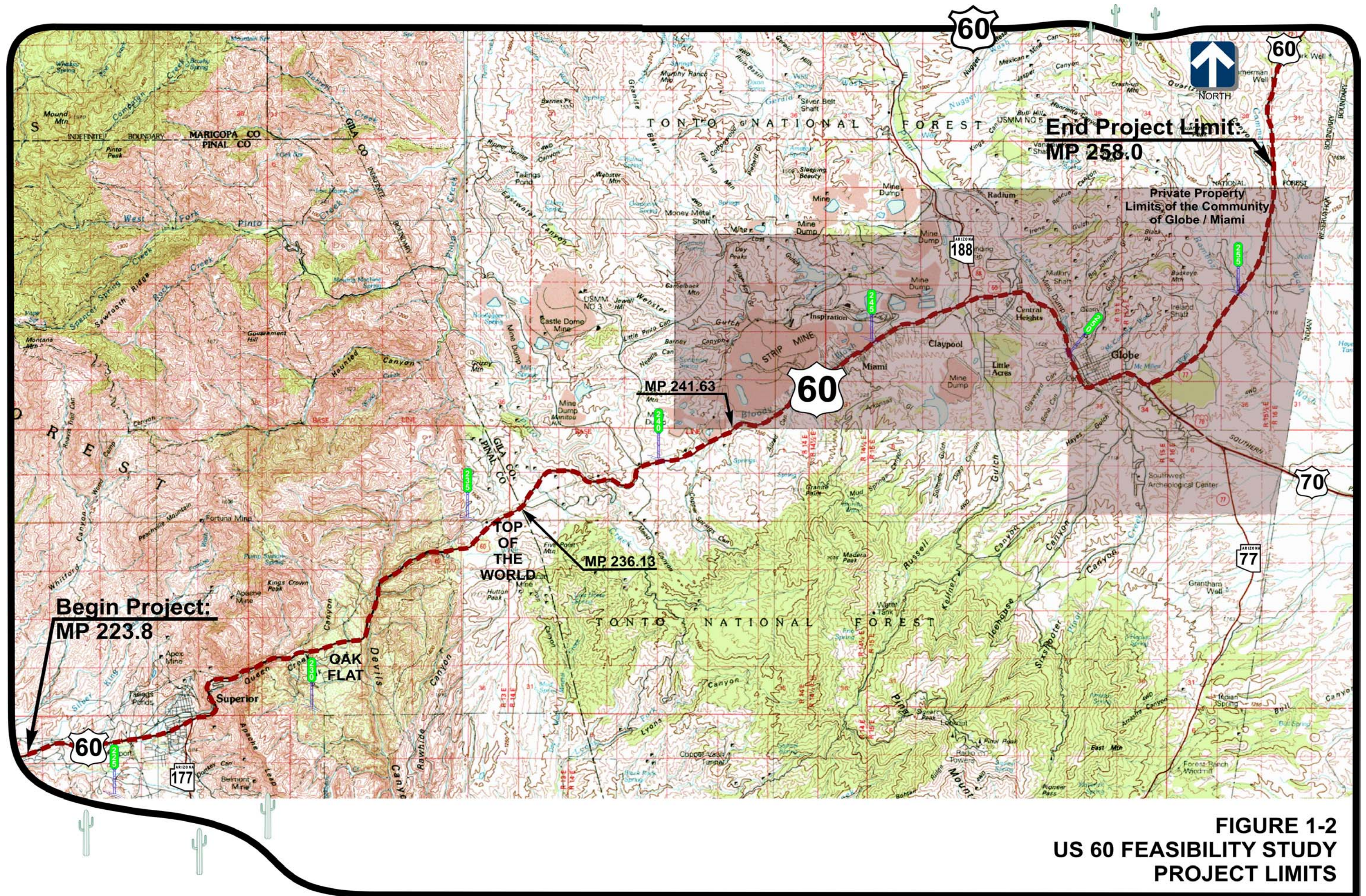


FIGURE 1-2
US 60 FEASIBILITY STUDY
PROJECT LIMITS

1.2 Need for the Project

US 60 serves as a major regional transportation facility connecting the Phoenix metropolitan area to recreational areas to the east and north, including the White Mountain Apache Reservation and Apache-Sitgreaves National Forest. In addition, the junction of SR 188 and US 60 located between Miami and Globe provides access to Roosevelt Lake, the Mogollon Rim Country, and the Tonto National Forest. The roadway also serves as a commercial link between the Phoenix metropolitan area and several towns and communities including Superior and the Globe-Miami area. Mining activities are prevalent along this section of US 60 including mines near Oak Flat, Pinto Valley and in Miami. Near the east end of Globe US 60 intersects US 70, which connects Safford and other communities in the Gila Valley to the Phoenix metro area. US 60 continues northerly and easterly, serving Show Low, Pinetop-Lakeside and other communities.

Transportation to Globe evolved as the mining activity grew. By 1878 supplies were brought from Florence. The first highway to Globe was the Apache Trail built during construction of the Theodore Roosevelt Dam in the early 1900s. In 1922, US 60 linked Globe with Phoenix. From the late 1930s, through the 1940s and 1950s US 60 was reconstructed on the current alignment from Superior to Globe-Miami. Although this construction resulted in a vastly improved roadway, it does not meet with current ADOT design guidelines for a design speed of 60 mph for mountainous terrain. Some segments of the route have since been upgraded, but a significant portion is still in use as constructed in the late 40s and early 50s. Section 3 of this report presents a summary of an evaluation made of the existing design features along US 60. ADOT has classified US 60 from Superior to Miami (MP 243.65) as a rural minor arterial and from MP 243.65 to the US 60/US 70 intersection as an urban principal arterial – other. US 60 northeast of Globe is also classified as a rural minor arterial.

The State is experiencing continued population growth. Traffic volumes along the entire route are expected to more than double by design year 2025 with the greatest increase expected between the junction of SR 188 and Globe. Travel speeds are also increasing on State highways. The increase in speed and traffic has increased the number of accidents and reduced the operation of much of this section of US 60 to a level of service E at the peak hour. This has resulted in requests from the ADOT Globe District personnel as well as the public for improvements to the highway. Section 2 of this report summarizes the Traffic Analysis Report prepared as a separate document.

It has become apparent that a proactive, long-range plan is necessary to guide future decisions regarding the improvements being requested for the highway. The focus is not to review interim or minor widening improvements, but to focus on the ultimate transportation corridor for traffic to travel safely and efficiently. With this in mind, ADOT is conducting this Feasibility Study as a first step in defining possible improvement corridors between Superior and Globe.

1.3 Description of the Project

1.3.1 Project Limits

The study area begins at US 60 MP 223.8, (east of the Boyce Thompson Arboretum west of Superior) and extends easterly 35 miles to MP 258.0 (northeast of the intersection of US 60 and US 70). Bypass alignments around Superior and the Globe-Miami areas are also being considered. The Superior bypass routes begin near MP 223.8 (west of Superior) and extend north 2 to 4 miles, then head east to Top of the World. The Miami-Globe bypass routes depart the existing highway near Pinto Valley, heading both north and south of the existing highway. The southern alternatives head east from Pinto Valley along the northern boundary of the forest, continuing south to avoid the developed canyons south of Globe before aligning with SR 77, then follow an extension of SR 77 north to rejoin the existing US 60 route northeast of Globe. Almost mirroring the southern alignments, the northern options around Miami/Globe head north from Pinto Valley to the northern private property limits of the town before heading east, across SR 188 and eventually connecting with US 60 at the eastern terminus. **Table 1-1** shows the location of the study areas.

TABLE 1-1 Location of Study Areas

Township	Range	Sections
2 South	12 East	2, 3, 4, 5, 6
1 South	12 East	10, 11, 12, 15, 22, 23, 24, 25, 26, 27, 33, 34, 35, 36
1 South	13 East	12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 27, 28, 29, 30, 31, 32
1 South	14 East	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
1 South	14 ½ East	See plans for portions of the section*
1 South	15 East	6, 7, 13, 16, 17*, 18*, 21*, 22, 23, 24
1 South	16 East	5, 7, 8, 17, 18, 19, 20*
1 North	14 East	See plans for portions of the section*
1 North	15 East	4, 5, 6, 20, 21, 22, 23, 25, 26, 29, 30, 36
1 North	15 ½ East	1, 2, 3, 23, 24, 25, 26, 27, 34, 35, 36
2 North	14 East	See plans for portions of the section*
2 North	15 East	33, 34, 35, 36
2 North	15 ½ East	1

* Denotes approximation; area is not sectioned

1.3.2 History of the Project Route

In its early days, Globe was isolated from transportation routes. In the 1870s supplies were hauled in from Silver City, New Mexico, 150 miles to the east. By 1878 supplies were brought from Florence, only 60 miles away, but the trip took five days. The first highway to Globe was the Apache Trail (Arizona 88) and by 1911, a trip from Globe to Phoenix took only two days. In 1922 US 60 linked Globe with Phoenix and the trip took only one day.

The highway development followed the development of the mines in the Globe-Miami vicinity and involved numerous projects ranging from simple roadway grading to realignment and asphalt surfacing. In 1922, a new roadway was completed linking Globe with Phoenix. Many sections of this historic roadway can still be seen from the present roadway alignment. In the late 1930s, through the 1940’s and early 1950s, the highway was reconstructed on a different alignment adjacent to the original alignment. In 1986, US 60 was designated a scenic route from MP 214.5 to MP 240.5. **Table 1-2** illustrates the history of development, and lists the various projects, type of construction, and year of construction.

TABLE 1-2 Previous Roadway Projects

Project No.	Begin MP	End MP	Construction Date	Description
	226	252	1922	Concrete
ER-022-3(80)P	227.24	228.85	1995	Emergency Project
F-16(8)	227.4	228.32	1949	Grade & Drain
F-16(11)	227.4	227.88	1951	Tunnel
F-16(13)	227.4	227.88	1951	Construct 38' Roadway
ROS-022-3(35)	227	236.22	1978	Remove Road Debris
F-16(9)	228.1	228.2	1950	Queen Creek Bridge
F-16(14)	228.8	229.05	1954	Queen Creek Tunnel
F-16(7)	229.6	230.2	1948	BST
F-022-3(17)	229.69	236.13	1961	40' Bituminous Surface
FAP 16 2 nd	230.3	231.9	1938	Construct 40' Roadway
F-022-3(69)	230.5	236.1	1990	Mill, Replace AC
FA16-3(1941)	231.9	233.6	1941	Construct 40' Roadway
STP-022-3(74)	233.45	234.0	1994	Widen Shoulder, Relocate GR
FA16-(2)-(1939)	233.6	236.2	1939	Construct 40' Roadway
F-022-5-934	236.13	243.64	1989	AC Overlay
F 16(5)	236.2	239.2	1947	Grade & Drain
F-16(6)	236.2	236.33	1948	Pinto Creek Br. Piers & Abut.
F-16(10)	236.2	236.33	1950	Pinto Creek Bridge
F-16(12)	236.2	239.5	1950	40' Bituminous Surface
F-022-3-511	236.13	243.34	1967	AC Overlay
BP-022-3(538)	237.65	238.48	1988	Rock Cut & Drainage
F-022-3-565	238.97	239.31	1993	Intersection Improvement
FA 16 1 st	242.72	242.73	1937	Bloody Tanks Wash Bridge
NFA 91A(1956) & FA 91-A	243.5	243.8	1956	Construct Roadway & Bridge
F-022-3(63)	243.64	245.22	1989	Mill & Replace AC
F-022-3-526	243.67	245.23	1973	AC Overlay
F 022-3(1)	243.8	244.45	1957	Construct 64' Roadway

Project No.	Begin MP	End MP	Construction Date	Description
F-022-3-554	244.3	244.4	1991	Remove Dip Section
F 91(8)	244.46	245.11	1955	Construct 68' Roadway
F-022-3-519	244.78	246.92	1969	Median Islands
U-91(7)	245.1	246.9	1949	Construct 72' Roadway
F-022-3-530	245.22	247.28	1975	AC Overlay
F-022-3(55)	245.22	247.21	1987	AC Overlay
F-022-5-939	245.22	248.70	1990	AC Overlay
WP 983 & WP 1271	245.7	248.5	1948	Construct New Roadway
F-022-3-504	246.85	247.21	1966	Widen Roadway
NFA-022-3(60)D	246.9	248.8	1960	AC Overlay
F-022-5-922	247.1	247.1	1981	Seal Coat
F-022-3-527	247.33	248.80	1973	AC Overlay
F-022-3(52)	248.6	251.95	1985	Mill & Replace
F-022-3-517	248.8	250.5	1968	AC Overlay
NFA 022-3(57)B	248.87	250.05	1957	Construct 60' Roadway
FA 91(C)	249.64	249.66	1942	Pinal Creek Bridge
WPA-127	249.80	249.82	1920	Pinal Creek Bridge
F 022-3(2)	250.05	250.51	1958	Construct 64' Roadway
F 022-3-521	250.05	251.78	1969	AC Overlay
F-022-3-534	250.4	250.4	1980	Pedestrian Overpass
F-022-3-531	250.5	251.17	1976	AC & Bridges
NFA 91B(1956)	250.8	251.2	1962	Construct 60' Roadway & Pedestrian Overpass
FAP 87-C	251.75	251.76	1930	McMillen Wash Bridge
F-026-1-512	251.9	252.2	1980	Modify Intersection

1.3.3 Purpose and Scope of the Project

The purpose of this study is to investigate improvements including: an evaluation of the existing design features; an analysis of traffic volumes and accidents; operational characteristics; development and evaluation of alternatives for improving the roadway to meet current recommendations for safety and capacity. As this is only a feasibility study and not a detailed comparison of individual improvement projects, the focus will remain to determine where a major roadway corridor could be developed. Once identified as feasible, a detailed investigation of the possible alternatives to be studied further as part of a design concept investigation.

1.4 Project Objectives

The project study team, in cooperation with the participating government agencies, established a number of project objectives at the outset of the study, together with a list of factors to be used in evaluating each of the design concept alternatives. The process involved input from the general public as well as from representatives of the various government agencies as outlined below.

1.4.1 The Scoping Process

The Feasibility Study for US 60, Superior to Globe was initiated with scoping meetings conducted with government agencies and the general public. A public scoping meeting was held in the Miami High School Auditorium, Miami, Arizona during the evening of August 24, 1999. The agency scoping meeting was held August 5, 1999 at the Roosevelt Junior High School in Superior. In addition, Jacobs Civil has met with the Greater Globe-Miami Chamber of Commerce on three occasions to discuss the study.

The purpose of these meetings was to obtain information from area residents, business people, and public agency representatives regarding the existing roadway and surrounding area in order to determine issues that needed to be addressed in preparing the project's Feasibility Study and environmental documentation. The informal sessions provided an opportunity for those in attendance to describe issues and express concerns about the existing roadway characteristics as well as to suggest various improvements that could be considered during the study.

Those in attendance indicated that US 60 needed to be improved to some extent throughout the corridor. Issues, concerns, and opportunities discussed at the public scoping meeting generally focused upon

economic impacts to businesses if they are bypassed, noise impacts if the roadway is placed closer to residences, roadway safety, scenic characteristics, and access control.

The agency scoping meeting was conducted in a formal meeting format and was attended by various representatives of the Arizona Department of Public Safety (DPS), Pinal County Board of Supervisors, Federal Highway Administration (FHWA), Tonto National Forest (TNF), Central Arizona Association of Governments (CAAG), Arizona State Land Department, The City of Globe, the Town of Superior Police Department, the Greater Globe-Miami Chamber of Commerce, Salt River Project (SRP), Arizona Public Service (APS) and ADOT. Numerous issues, concerns, and opportunities were discussed during the meeting, but the most significant ones were impacts of a bypass on businesses, impacts on residences, roadway safety, opportunities for recreation and scenic vistas, visual appearance of the roadway cross-section, and access. Other study elements that were considered important included costs, maximum use of the existing roadway, coordination with new development, and no new right-of-way from private lands.

1.4.2 Issues, Concerns, and Opportunities

During the agency and public scoping sessions, the following Issues, Concerns, and Opportunities (ICO's) were identified:

- 1. Business and Residential ICO's:** The potential loss of business and the increased noise through residential areas were concerns expressed by both the public and agency representatives. The towns in the study area are pass-through routes, not destinations. The businesses are dependent on through traffic stopping. Recommendations included the following items:
 - Keep the existing highway through towns for local/recreational traffic.
 - If a divided highway is developed, route one direction of traffic through the towns and the other on a bypass.
 - A bypass through the Globe-Miami area should be as close to town as possible.
 - Improvements through the Top of the World community should place both eastbound and westbound traffic on the same side of the community. Preferably on the north side of Signal Mountain.
- 2. Roadway Safety ICO's:** The safe flow of traffic was a concern for both the public agencies and the general public. The opinions of attendees recognized the need for roadway improvements and encouraged that long term improvements be considered. Agency and

public participants recommended consideration of the following safety issues:

- Provisions for a runaway truck ramp should be maintained.
- Uphill passing lanes have helped but two lanes are also needed downhill.
- Two lanes each direction are needed for climbing and passing lanes.
- Bypassing the towns may result in fewer trucks through town.
- Consider laying back cuts to allow more sun on the roadway to minimize icy conditions.
- The long tunnels being considered could create a problem for transport of hazardous materials. Will the tunnels be vented?

- 3. Scenic/Recreational Benefit ICO's:** Agency representatives and the public expressed the following concerns for scenic, recreational, historic and environmental items:
 - Scenic vista turnouts should be included along the highway to provide the traveling public with opportunities to appreciate the aesthetics of the corridor.
 - Archaeological coordination should be initiated as early as possible.
 - The Apache Tribes should be involved early. There may be traditional cultural properties or other types of sensitive areas in the study area.
 - Owl habitat should be identified as soon as possible.
- 4. Development and Access ICO's:** Access control along the bypass routes should be considered to prevent businesses from relocating along the new highway. Representatives from the Towns of Superior and Miami, the City of Globe, Pinal County, Gila County, the State Land Department and ADOT all need to better coordinate development along the corridor. Access needs to be maintained to developable land adjacent to the highway. ADOT does not have the ability to deny access unless they have bought that right from the adjoining property, however, only one access point per parcel is required. ADOT's task is to move people safely and efficiently through the corridor and to meet this goal they would like to preserve the function of US 60 as a high-speed arterial.
- 5. Alignment ICO's:** The alignment should fit the landform to the greatest extent possible to reduce the impact upon the natural topography. Independent alignments should be considered to minimize cuts and fills in steep terrain. Where the terrain allows for a

divided highway, the alignment should also minimize the median width so that the impact to developable land is reduced and so that less land is taken from Forest Service management. All alignment options should be considered to ensure that the best possible and least environmentally damaging alignment is selected.

1.5 Characteristics of the Corridor

The existing asphalt paved roadway through the rural section of the project (MP 226.85 to MP 243.65) can generally be described as a two-lane highway with paved shoulders on a moderately curvilinear alignment, having rolling to mountainous grades, and limited passing opportunities. On some steep sections, the two-lane roadway has been restriped to provide a third climbing lane. Through the urban section of the project (MP 243.65 to MP 252.23) the existing asphalt paved roadway is generally a four-lane curbed section with a six to twelve foot

median. The posted speed limit varies from 45 mph to 55 mph through the rural section and from 30 mph to 55 mph through the urban section.

US 60 serves a mixture of traffic including local merchants/ residents, commuters, recreational visitors, and travelers or truckers passing through the study limits. Mining operations generate additional traffic that is not significant at present but has the potential to significantly impact traffic if mining picks up in the future. In fact, as this final report was being developed, new discussions in August 2004 with the Resolution Copper Company, who recently purchased land and mineral rights of what used to be the Magma Copper Company in the Superior area, revealed their plans to begin mining operations in the area within 12 years that could potentially impact the proposed improvements to US 60 between Superior and Globe.

Elevations along the route vary from approximately 2,840 feet above mean sea level (msl) at the beginning of the project (Jct. SR 177),

climbing to about 4,150 feet msl near Top of the World, continuing to climb to 4,617 feet msl at the summit near the Pinal/Gila County line. The elevations then fall to 3,440 feet msl near the west city limits of Miami. The terrain is then rolling to an elevation of about 3770 feet msl at the end of the project at the junction of US 70. Topographically, the terrain is classified as mountainous from the beginning of the project to MP 243.1, near the west city limits of Miami and as rolling from there to the end of the project. for roadway design criteria purposes.

The adjacent land between Superior and Miami is generally vacant with high desert vegetation. The terrain is mountainous with prominent rock outcroppings. Through the urbanized areas of Superior, Miami and Globe much of the land is in private ownership. Through the rural areas much of the land is Tonto National Forest Lands with private land interspersed throughout the study area generally owned by mining companies. Top of the World is a residential community located along US 60 in the vicinity of MP 235.